Prototype Land

Measurements Portal

MODIS/VIIRS Science Team Meeting May 13-16, 2008



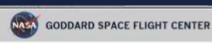
Enrique Montaño, UMD Chris Justice, UMD Ed Masuoka, NASA

Land Measurements Portal

- * The Land Measurements Portal provides a single location to find information and data products related to terrestrial observations.
- * Promote new products and projects from sources other than agencies
- * Sources of data now include:

NASA	USGS	
ESA	JRS	
JAXA	POSTEL	
EUMETSAT	CNES	
VITO	Multiple Universities	

Home Page



MASA Homepage











Sensors

Greater Than 1km

- · AATSR ERS-2
- ATSR DRS-1
- · AVERT NOAA FOES
- AVHER/3.—MetQo
- GDES trooper GDES
- FOLDOR 1-2 ADEOS 1-2
- SEVER Metopost Second Generation
- · Vegetation SPOT 4-5
- · VIRS -- TRIMI

Spatial Resolution 10m - 1km

Spasial Resolution Less Than 10m

Microwaya Sensors

Planned Sensors

Quick Data Search

Select Product:

Refine by Spatial Scale - Refine by Temporal Scale O \$ 500W (3 ± Monthly

O = 500+

C v Monthly (Subset) (Seed Form)

Current News

New Proposed Seteline Music - Bioto-2008 Insury for Everyone 2008 ELMETSAT and JRC some to consocrate by 2008 First Online LC Map at 300m 2008 Antic for Return. This and Techston 8008

Full Archive Submit Article

Upcoming Meeting Schedule Sep 1 : Sep 4, 2009 GOES & User Conformer Nov 10 | Nov 14; LOLIC Science Topin Meeting

Nov 3 : Nov 7, 2006 ALDS H Wartshop Hay 27 : Hay 30. GEORG IN THE AMERICAN

May 13 : May 15, VERS-MODIS Science Team Meeting

Full Schedule Submit Meeting

International Coordination

The international community has established Tre NASA Earth science research program's Cartion several organizations to coordinate efforts and Cycle and Ecosystems Focus Area and Mutar and Evergy requirements for current and future missions:

- · Group on Earth Observations (GEO)
- Global Agricultural Mentaging System Committee on Earth Observation Satellites
 - . Warking Gross on Calibration / Validation
 - Working Group, on Information Systems and Services (WIRSS)
- Land Product Validation (LPV) Subgroup International Global Observations for Land
- Global Terrestrial Observing System (GTOS)
- Robal Choevation of Forest and Land Cover Dynamics (GDFC/GDLD)
 - · Land Cover Implementation Team
 - Fire Implementation Team Land/Vesstation Direct Readout
 - Climate Disservations
 - · Terrestrial Carbon

New Land Products / Projects



LTDR is a NASA-funded REASON. project to produce a consistent long-term data set from AVHRR and MODIS instruments for climate studies, Read more...

Advertise New Products or Projects

Mission to Measurements

Cycle Focus Area are establishing a Land Measurements Team to address their absenution needs for scienceswelly time series data records.

The new measurement team is intended to shift the emphasis away from individual resulton-ocented data sets to measurements to meet the needs of the focus areas that utilize observations from different missions. and instruments.

NASA ESDRs

Click To View White Papers

The NASA Land Measurements Team addresses the observation needs for science-quality time sense data records, to be called "Earth System Data Records" (ESDRs). These ESDRs will meet the needs of both the research and applied science communities of NASA. The ESDR white papers are intended as a basis for measurement team discussion.



GODDARD SPACE FLIGHT CENTER

NASA Homepage









Change



Hydrosphere

News

Upcoming Meetings

Feedback

Data Providers

Sensor List

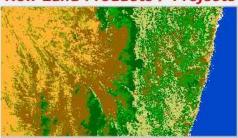
Private Policy and Impaction. FIRSTGOV



Cureton Empan Montana NASA Official Diward Hotorica Lest Updatest April 25, 2008

Home Page Components

New Land Products / Projects



East Coast of Madagascar

The POSTEL Service Centre has produced the first global land cover map at 300 m resolution, discriminating the land surfaces in 22 classes, derived from full resolution MERIS / ENVISAT data acquired in the period May 2005 - April 2006. Read more...

Advertise New Products or Projects

Sensors

Spatial Resolution Greater Than 1km

- AATSR ERS-2
- ATER ERS-1
- AVHRR NOAA POES
- AVHRR/3 MetOp
- GOES Imager GOES
- POLDER 1-2 ADEOS 1-2
- SEVIRI Meteosat Second Generation
- Vegetation SPOT 4-5
- VRS TRMM
- WiFS IRS 1C-1D

Spatial Resolution 10m - 1km

Spatial Resolution Less Than 10m

Microwave Sensors

Planned Sensors

	-	1022			
	Current News				
Mar - 2008	EUMETSAT and JRC agree to cooperate on monitoring climate change				
Mar - 2008	First Global LC Map at 300m				
Mar - 2008	Arctic Ice Returns, Thin and Tentative				
Feb - 2008	Earthnet OnLine Interactive Client Launch 5.3.1				
Feb - 2008	New RedLaTIF Website				
Full Archive Submit Article					
Upcoming Meeting Schedule					
Sep 1 : Sep 4, 2009 GOES-R User Conference					
Nov 10 : Nov 14, 2008		LCLUC Science Team Meeting - Thailand			
May 27 : May 30, 2008		GEOSS in the Americas			
May 13 : May 15, 2008		VIIRS-MODIS Science Team Meeting			
May 6 : May 8, 2008		GEO/CEOS Workshop on QA & Cal/Val			
Full Schedule Submit Meeting					

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 - Terrestrial Carbon

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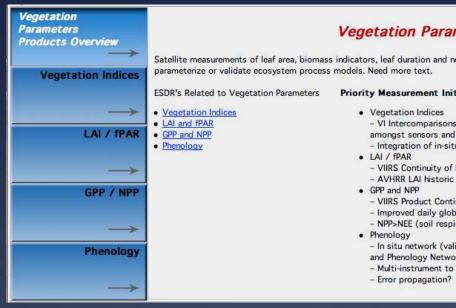
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Four Major Categories



Vegetation Parameters

Satellite measurements of leaf area, biomass indicators, leaf duration and net primary productivity provide important inputs to

Priority Measurement Initiatives for Vegetation Products

- VI Intercomparisons AVHRR, MODIS, VGT (LPV) amongst sensors and between alternative indices (e.g. NDVI/EVI)
- Integration of in-situ network data (validation of seasonal cycle)
- VIIRS Continuity of MODIS LAI product
- AVHRR LAI historic record
- VIIRS Product Continuity
- Improved daily global meteorology (accuracy)
- NPP>NEE (soil respiration, and light use efficiency)
- In situ network (validation/calibration) coordination with LTER and Fluxnet and Phenology Networks
- Multi-instrument to overcome clouds (microwave R&D)



Land Cover / Land Use Change

Advancements in the quality and availability of many land cover and land cover change products, as well as their improved spatial and temporal coverage have enhanced the range and size of the land user community. Land products are increasingly used operationally for many applications including forecasting and change detection as well as policy and decision-making.

ESDR's Land Cover and Change Fire

Priority Measurement Initiatives for Land Cover, Land Cover Change, and **Disturbance Products**

- Land Cover and Change
- Mid Decadal Global Land Survey implementation (Phase 2/3)
- Long Term Data Record (LTDR) AVHRR/MODIS/VIIRS consistent land cover products
- Reconciliation between land cover and continuous fields
- · Land Cover Classification System (LCCS) refinement leading to a hierarchical system and augmentation for seasonal systems (wetlands and agriculture (crop type etc))
- Active Fire/Burned Area from VIIRS (data continuity)
- Fire Radiative Power research and development and validation
- Global Burned Area Validation Initiative (international GOFC/GOLD)

Four Major Categories



Surface Radiation Budget

Satellite measurements of radiation parameters are used as inputs to global or regional Earth system models or decision support systems for environmental policy or natural resource management.

Surface Radiation Parameter White Papers

Surface Reflectance LST/Emissivity BRDF/Albedo

Priority Measurement Initiatives for Radiation/Energy Budget Products

- PAR and Incident Solar Radiation
 - Internally consistent multi-instrument global gridded PAR (initial emphasis on MODIS to increase spatial resolution (5km) and consistency between products) (assumes validation)
- · Land Surface Temperature and Emissivity
 - Internally consistent multi-instrument global gridded LST (MODIS/ASTER/AIRS) – algorithm intercomparison first step
 - Internally consistent multi-instrument global gridded emissivity (MODIS/ASTER/AIRS) – algorithm intercomparison first step (assumes expanded cal/val activities and scaling)
 - Need to revisit the White paper to address diurnal cycle issue
- Albedo and Anisotropy
 - Validation of global albedo products (international CEOS LPV)
 - Diurnal albedo
 - Multisource data set (see also snow albedo)
 - Gap filled products for GCMers

Land Hydrosphere Products Overview Docume Snow Cover Earth S enhance and bid How is delinear ESDR's Surface Hydrology Snow Surface

Land Hydrosphere Products

Documenting the global water and energy cycle through modeling and observations is fundamental to achieve the goals of NASA's Earth Science Research Strategy. Such documentation is needed to enable NASA and its supported investigators to acquire enhanced knowledge of Earth's climate, including characterizing the memories, pathways and feedbacks between key water, energy and biogeochemical cycles. With this enhanced knowledge, there is the potential for NASA to resolve its overarching scientific goal: How is the Earth changing and what are the consequences for life on Earth?, which the Earth Science Research Strategy further delineates into five areas related to variability, forcings, response, consequences, and predictions.

Priority Measurement Initiatives for Cryospheric Products

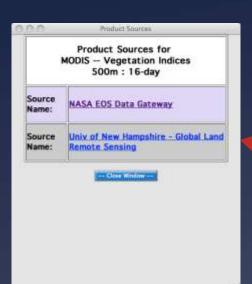
- Snow Cover
- Surface Hydrology

- Snow Cover
 - Snow water equivalent (R & D)
 - Snow albedo validation

Community News

- * The portal provides a source for international news and meetings relevant to the land remote sensing community
 - * Submissions are gladly accepted
- * The portal is also encouraging the development of international coordination and standardization of validation efforts

Products and Sources



MODIS Vegetation Indices Product Description Product Validation Information Data Sources	Funding Agency: Developing Institution: Reference Paper:	NASA University of Arizona MODIS Vegetation Index Users Guide	Spatial Coverage: Spatial Resolution: Temporal Resolution: Product Archive:	Global 500m 16-day 2000- Present
MODIS Vegetation Indices Product Description Product Validation Information Data Sources	Funding Agency: Developing Institution: Reference Paper:	NASA University of Arizona MODIS Vegetation Index Users Guide	Spatial Resolution: Temporal Resolution:	Global 1km 16-day 2000- Present
MODIS Vegetation Indices Product Description Product Validation Information Data Sources	Funding Agency: Developing Institution: Reference Paper:	NASA University of Arizona MODIS Vegetation Index Users Guide	Spatial Resolution: Temporal Resolution:	Global 250m 16-day 2000- Present
MODIS Gap-Filled, Smoothed NDVI Product Description No validation information is currently available Data Sources	Funding Agency: Developing Institution: Reference Paper:	NASA GSFC User Guide for MOD09GFS and MOD15GFS	Spatial Coverage: Spatial Resolution: Temporal Resolution: Product Archive:	Global 500m 8-day 2000-2006
MODIS Gap-Filled, Smoothed EVI Product Description No validation information is currently available Data Sources	Funding Agency: Developing Institution: Reference Paper:	NASA GSFC User Guide for MOD09GFS and MOD15GFS	Spatial Coverage: Spatial Resolution: Temporal Resolution: Product Archive:	Global 500m 8-day 2000-2006

Sensors

Moderate Resolution Imaging Spectraradiometer (MODIS)

Mission Website: Terra/Aqua

Agency: NASA Mission Lifetime / Length of Archive:

2000 - Present

Spatial Coverage: Global

Spatial Resolution: 250m - 1km

Temporal Resolution: Daily

Spectral Resolution: 405-14.385

Overpass Time: 10:30am / 1:30pm

Sensor Products

Vegetation Indicies (7) GPP / NPP (2) LAI / fPAR (2)

Surface Reflectance (6)

Land Surface Temperature (6) BRDF / Surface Albedo (5)

Land Cover (2)

Vegetation Continuous Field (2)

Fire Disturbance (4)
Snow Cover (4)
Surface Hydrology (2)
Phenology (6)

Sensors with Similar Spatial Resolution

- . MODIS Terra/Aqua
- ASTER Terra
- GLI -- ADEOS-2
- · MISR -- Terra
- MERIS -- ENVISAT
- RBV Landsat 1-2
- MSS -- Landsat 1-5
- TM Landsat 4-5
- ETM+ -- Landsat 7
- LISS -- IRS 1A-1D
- WiFS -- IRS 1C-1D
- IR-MSS -- CBERS 1-2
- CCD -- CBERS 1-2
- AWiFS IRS ResourceSat 1-2
- DMC -- DMC
- MMRS -- SAC-C
- OLS -- DMSP

Demonstration

* http://landportal.geog.umd.edu/portal/portal_login.php

Username:	betauser
Password:	vDcKX2

Future Directions and Needs

- * Product Cal/Val status is the next step in development
 - * The portal promotes a coordinated, standardized validation for products
- * Further review
 - * Corrections or clarifications to products
 - * More sources
 - * New Products
 - * What else does the community need or want to see?
- * Outreach